



1

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SEQUENCE LISTING

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<110> Eisenberg, Stephen P.  
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Rebar, Edward J.  
Sangamo Biosciences, Inc.

<120> Selection of Sites for Targeting by Zinc Finger  
Proteins and Methods of Designing Zinc Finger Proteins  
to Bind to Preselected Sites

<130> 019496-001800US

<140> US 09/229,007  
<141> 1999-01-12

<160> 97

<170> PatentIn Ver. 2.1

<210> 1  
<211> 25  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:exemplary motif  
characterizing the C-2H-2 class of zinc finger  
proteins (ZFP)

<220>  
<221> MOD\_RES  
<222> (1)..(25)  
<223> Xaa = any amino acid

<220>  
<221> MOD\_RES  
<222> (4)..(5)  
<223> Xaa = any amino acid, may be present or absent

<220>  
<221> MOD\_RES  
<222> (23)..(24)  
<223> Xaa = any amino acid, may be present or absent

<400> 1  
Cys Xaa Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa  
1 5 10 15  
Xaa Xaa His Xaa Xaa Xaa Xaa His  
20 25

<210> 2  
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<212> PRT  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:peptide linker

<400> 2

Thr Gly Glu Lys Pro  
1 5

<210> 3

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:peptide linker

<400> 3

Gly Gly Gly Gly Ser  
1 5

<210> 4

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:peptide linker

<400> 4

Gly Gly Arg Arg Gly Gly Gly Ser  
1 5

<210> 5

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:peptide linker

<400> 5

Leu Arg Gln Arg Asp Gly Glu Arg Pro  
1 5

<210> 6

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:peptide linker

<400> 6

Leu Arg Gln Lys Asp Gly Gly Gly Ser Glu Arg Pro  
1 5 10

<210> 7  
 <211> 16  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:peptide linker

<400> 7  
 Leu Arg Gln Lys Asp Gly Gly Gly Ser Gly Gly Gly Ser Glu Arg Pro  
       1                  5                  10                  15

<210> 8  
 <211> 85  
 <212> PRT  
 <213> Mus sp.

<220>  
 <223> DNA binding domain of mouse transcription factor  
       Zif268

<400> 8  
 Tyr Ala Cys Pro Val Glu Ser Cys Asp Arg Arg Phe Ser Arg Ser Asp  
       1                  5                  10                  15  
  
 Glu Leu Thr Arg His Ile Arg Ile His Thr Gly Gln Lys Pro Phe Gln  
                   20                  25                  30  
  
 Cys Arg Ile Cys Met Arg Asn Phe Ser Arg Ser Asp His Leu Thr Thr  
           35                  40                  45  
  
 His Ile Arg Thr His Thr Gly Glu Lys Pro Phe Ala Cys Asp Ile Cys  
       50                  55                  60  
  
 Gly Arg Lys Phe Ala Arg Ser Asp Glu Arg Lys Arg His Thr Lys Ile  
       65                  70                  75                  80  
  
 His Leu Arg Gln Lys  
                   85

<210> 9  
 <211> 94  
 <212> PRT  
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<220>  
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       531-624 in Sp-1 transcription factor

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 Pro Gly Lys Lys Lys Gln His Ile Cys His Ile Gln Gly Cys Gly Lys  
       1                  5                  10                  15  
  
 Val Tyr Gly Lys Thr Ser His Leu Arg Ala His Leu Arg Trp His Thr  
           20                  25                  30  
  
 Gly Glu Arg Pro Phe Met Cys Thr Trp Ser Tyr Cys Gly Lys Arg Phe  
       35                  40                  45

Thr Arg Ser Asp Glu Leu Gln Arg His Lys Arg Thr His Thr Gly Glu  
50 55 60

Lys Lys Phe Ala Cys Pro Glu Cys Pro Lys Arg Phe Met Arg Ser Asp  
65 70 75 80

His Leu Ser Lys His Ile Lys Thr His Gln Asn Lys Lys Gly  
85 90

<210> 10  
<211> 98  
<212> PRT  
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<220>  
<223> Description of Artificial Sequence:Sp-1  
transcription factor consensus sequence

<400> 10  
Met Glu Lys Leu Arg Asn Gly Ser Gly Asp Pro Gly Lys Lys Lys Gln  
1 5 10 15

His Ala Cys Pro Glu Cys Gly Lys Ser Phe Ser Lys Ser Ser His Leu  
20 25 30

Arg Ala His Gln Arg Thr His Thr Gly Glu Arg Pro Tyr Lys Cys Pro  
35 40 45

Glu Cys Gly Lys Ser Phe Ser Arg Ser Asp Glu Leu Gln Arg His Gln  
50 55 60

Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly Lys  
65 70 75 80

Ser Phe Ser Arg Ser Asp His Leu Ser Lys His Gln Arg Thr His Gln  
85 90 95

Asn Lys

<210> 11  
<211> 10  
<212> DNA  
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<220>  
<223> Description of Artificial Sequence:natural Zif268  
binding site

<400> 11  
gcgtgggcgc

10

<210> 12  
<211> 10  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:target site  
containing three D-able subsites

<400> 12  
ggntgngggn

10

<210> 13  
<211> 10  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:target site  
with two overlapping D-able subsites

<400> 13  
nngkngknnn

10

<210> 14  
<211> 10  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:target site  
with three overlapping D-able subsites

<400> 14  
nngkngkngk

10

<210> 15  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:target site DNA  
motif searched by protocol 1

<220>  
<221> modified\_base  
<222> (1)..(22)  
<223> n = g, a, c or t

<220>  
<221> modified\_base  
<222> (10)..(12)  
<223> n = g, a, c or t, may be present or absent

<400> 15  
gnggngnnnn nngnggngnn nn

22

<210> 16  
<211> 23  
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 <223> n = g, a, c or t

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 <223> n = g, a, c or t, may be present or absent

<400> 16  
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<210> 17  
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<220>  
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 motif searched by protocol 1

<220>  
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<220>  
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 <222> (10)..(12)  
 <223> n = g, a, c or t, may be present or absent

<400> 17  
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22

<210> 18  
 <211> 23  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:target site DNA  
 motif searched by protocol 1

<220>  
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 <223> n = g, a, c or t

<220>  
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 <223> n = g, a, c or t, may be present or absent

<400> 18  
gnggnngnnn nnnngnngngg nnn

23

<210> 19  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:target site DNA  
motif searched by protocol 1

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<220>  
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<222> (10)..(12)  
<223> n = g, a, c or t, may be present or absent

<400> 19  
gnggnngnnn nngnggnngn gg

22

<210> 20  
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motif searched by protocol 1

<220>  
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<223> n = g, a, c or t

<220>  
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<400> 20  
gnggnngnnn nnnngngnng ngg

23

<210> 21  
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motif searched by protocol 1

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<400> 21  
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22

<210> 22  
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 motif searched by protocol 1

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<220>  
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 <222> (11)..(13)  
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<400> 22  
 gnngngggnnn nnnngnggngg nnn

23

<210> 23  
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<220>  
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 motif searched by protocol 1

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<220>  
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<400> 23  
 gnngngggnnn nngnnngnggn nn

22



<210> 24  
 <211> 23  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:target site DNA  
 motif searched by protocol 1

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<220>  
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 <222> (11)..(13)  
 <223> n = g, a, c or t, may be present or absent

<400> 24  
 gnngngggnnn nnnngnnngngg nnn

23

<210> 25  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence

<220>  
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 motif searched by protocol 1

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<220>  
 <221> modified\_base  
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<400> 25  
 gnngngggnnn nngngggnngn gg

22

<210> 26  
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<220>  
 <223> Description of Artificial Sequence:target site DNA  
 motif searched by protocol 1

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 <223> n = g, a, c or t

<220>  
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<400> 26  
 gnnngnggnnn nnnngnggngg ngg

23

<210> 27  
 <211> 23  
 <212> DNA  
 <213> Artificial Sequence

<220>  
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 motif searched by protocol 1

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 <223> n = g, a, c or t

<220>  
 <221> modified\_base  
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<400> 27  
 gnnngnnngngg nnnngnggngg nnn

23

<210> 28  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
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 motif searched by protocol 1

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<220>  
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<400> 28  
 gnnngnnngngg nnnngnggngn gnnn

24

<210> 29  
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 <212> DNA  
 <213> Artificial Sequence

<220>  
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 motif searched by protocol 1

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<220>  
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<400> 29  
 gnnngnnnggg nnnngnnnggg nnn

23

<210> 30  
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 <212> DNA  
 <213> Artificial Sequence

<220>  
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<220>  
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<400> 30  
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24

<210> 31  
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 <213> Artificial Sequence

<220>  
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 motif searched by protocol 1

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 <223> n = g, a, c or t

<220>  
 <221> modified\_base  
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 <223> n = g, a, c or t, may be present or absent

<400> 31  
gnngnngngg nnnngnggng ngg

23

<210> 32  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:target site DNA  
motif searched by protocol 1

<220>  
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<222> (1)..(24)  
<223> n = g, a, c or t

<220>  
<221> modified\_base  
<222> (12)..(14)  
<223> n = g, a, c or t, may be present or absent

<400> 32  
gnngnngngg nnnngnggng gngg

24

<210> 33  
<211> 19  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:target site DNA  
motif searched by protocol 1

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<222> (1)..(19)  
<223> n = g, a, c or t

<400> 33  
gnngnngngg nggnngnnn

19

<210> 34  
<211> 19  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:target site DNA  
motif searched by protocol 1

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<222> (1)..(19)  
<223> n = g, a, c or t

<400> 34  
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19

<210> 35  
 <211> 19  
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 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:target site DNA  
 motif searched by protocol 1

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<400> 35  
 gnngnngngg nngnngngg

19

<210> 36  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:target site DNA  
 motif searched by protocol 2

<220>  
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 <222> (1)..(22)  
 <223> n = g, a, c or t

<220>  
 <221> modified\_base  
 <222> (10)..(12)  
 <223> n = g, a, c or t, may be present or absent

<400> 36  
 knngnnknnn nnknngnnkn nn

22

<210> 37  
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 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:target site DNA  
 motif searched by protocol 2

<220>  
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 <222> (1)..(23)  
 <223> n = g, a, c or t

<220>  
 <221> modified\_base  
 <222> (11)..(13)  
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<400> 37  
knngnnknkn nnnknnggnnk nnn

23

<210> 38  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:target site DNA  
motif searched by.protocol 2

<220>  
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<222> (1)..(22)  
<223> n = g, a, c or t

<220>  
<221> modified\_base  
<222> (10)..(12)  
<223> n = g, a, c or t, may be present or absent

<400> 38  
knngnnknkn nnknknnggn nn

22

<210> 39  
<211> 23  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:target site DNA  
motif searched by protocol 2

<220>  
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<222> (1)..(23)  
<223> n = g, a, c or t

<220>  
<221> modified\_base  
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<223> n = g, a, c or t, may be present or absent

<400> 39  
knngnnknkn nnnknknngg nnn

23

<210> 40  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:target site DNA  
motif searched by protocol 2

<220>  
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 <223> n = g, a, c or t

<220>  
 <221> modified\_base  
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 <223> n = g, a, c or t, may be present or absent

<400> 40  
 knngnnknnn nnknnknnkn gg

22

<210> 41  
 <211> 23  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:target site DNA  
 motif searched by protocol 2

<220>  
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 <222> (1)..(23)  
 <223> n = g, a, c or t

<220>  
 <221> modified\_base  
 <222> (11)..(13)  
 <223> n = g, a, c or t, may be present or absent

<400> 41  
 knngnnknnn nnnknnknnk ngg

23

<210> 42  
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 <213> Artificial Sequence

<220>  
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 motif searched by protocol 2

<220>  
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 <222> (1)..(22)  
 <223> n = g, a, c or t

<220>  
 <221> modified\_base  
 <222> (10)..(12)  
 <223> n = g, a, c or t, may be present or absent

<400> 42  
 knnknggnnn nnknggnnkn nn

22

<210> 43  
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 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:target site DNA  
 motif searched by protocol 2

<220>  
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 <222> (1)..(23)  
 <223> n = g, a, c or t

<220>  
 <221> modified\_base  
 <222> (11)..(13)  
 <223> n = g, a, c or t, may be present or absent

<400> 43  
 knnkngggnnn nnnknnggnnk nnn

23

<210> 44  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence

<220>  
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 motif searched by protocol 2

<220>  
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 <222> (1)..(22)  
 <223> n = g, a, c or t

<220>  
 <221> modified\_base  
 <222> (10)..(12)  
 <223> n = g, a, c or t, may be present or absent

<400> 44  
 knnkngggnnn nnknknnggn nn

22

<210> 45  
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 <213> Artificial Sequence

<220>  
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 motif searched by protocol 2

<220>  
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 <222> (1)..(23)  
 <223> n = g, a, c or t



<220>  
 <221> modified\_base  
 <222> (11)..(13)  
 <223> n = g, a, c or t, may be present or absent

<400> 45  
 knnkngggnnn nnnknnknngg nnn

23

<210> 46  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence

<220>  
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 motif searched by protocol 2

<220>  
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 <223> n = g, a, c or t

<220>  
 <221> modified\_base  
 <222> (10)..(12)  
 <223> n = g, a, c or t, may be present or absent

<400> 46  
 knnkngggnnn nnknknknkn gg

22

<210> 47  
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 <212> DNA  
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<220>  
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 motif searched by protocol 2

<220>  
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 <223> n = g, a, c or t

<220>  
 <221> modified\_base  
 <222> (11)..(13)  
 <223> n = g, a, c or t, may be present or absent

<400> 47  
 knnkngggnnn nnnknnknkn ngg

23

<210> 48  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:target site DNA  
 motif searched by protocol 2

<220>  
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 <223> n = g, a, c or t

<220>  
 <221> modified\_base  
 <222> (11)..(12)  
 <223> n = g, a, c or t, may be present or absent

<400> 48  
 knnknnknngg nnknnggnkn nn

22

<210> 49  
 <211> 23  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:target site DNA  
 motif searched by protocol 2

<220>  
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<220>  
 <221> modified\_base  
 <222> (12)..(13)  
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<400> 49  
 knnknnknngg nnnknnggnkn nnn

23

<210> 50  
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<220>  
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<220>  
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<220>  
 <221> modified\_base  
 <222> (11)..(12)  
 <223> n = g, a, c or t, may be present or absent

<400> 50  
knnknnknngg nnknnknnggn nn

22

<210> 51  
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<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:target site DNA  
motif searched by protocol 2

<220>  
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<223> n = g, a, c or t

<220>  
<221> modified\_base  
<222> (12)..(13)  
<223> n = g, a, c or t, may be present or absent

<400> 51  
knnknnknngg nnnknnknngg nnn

23

<210> 52  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:target site DNA  
motif searched by protocol 2

<220>  
<221> modified\_base  
<222> (1)..(22)  
<223> n = g, a, c or t

<220>  
<221> modified\_base  
<222> (11)..(12)  
<223> n = g, a, c or t, may be present or absent

<400> 52  
knnknnknngg nnknnknknkn gg

22

<210> 53  
<211> 23  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:target site DNA  
motif searched by protocol 2

<220>  
 <221> modified\_base  
 <222> (1)..(23)  
 <223> n = g, a, c or t

<220>  
 <221> modified\_base  
 <222> (12)..(13)  
 <223> n = g, a, c or t, may be present or absent

<400> 53  
 knnknnknngg nnnknnknnk ngg

23

<210> 54  
 <211> 19  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:target site DNA  
 motif searched by protocol 2

<220>  
 <221> modified\_base  
 <222> (1)..(19)  
 <223> n = g, a, c or t

<400> 54  
 knnknnknngg nggnnknnn

19

<210> 55  
 <211> 19  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:target site DNA  
 motif searched by protocol 2

<220>  
 <221> modified\_base  
 <222> (1)..(19)  
 <223> n = g, a, c or t

<400> 55  
 knnknnknngg nnknngnnn

19

<210> 56  
 <211> 19  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:target site DNA  
 motif searched by protocol 2

<220>  
 <221> modified\_base  
 <222> (1)..(19)  
 <223> n = g, a, c or t

<400> 56  
 knnknnknngg nnknnknngg

19

<210> 57  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:target site DNA  
 motif searched by protocol 3

<220>  
 <221> modified\_base  
 <222> (1)..(22)  
 <223> n = g, a, c or t

<220>  
 <221> modified\_base  
 <222> (10)..(12)  
 <223> n = g, a, c or t, may be present or absent

<400> 57  
 knngknnknnn nnknngknnkn nn

22

<210> 58  
 <211> 23  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:target site DNA  
 motif searched by protocol 3

<220>  
 <221> modified\_base  
 <222> (1)..(23)  
 <223> n = g, a, c or t

<220>  
 <221> modified\_base  
 <222> (11)..(13)  
 <223> n = g, a, c or t, may be present or absent

<400> 58  
 knngknnknnn nnnknngknnk nnn

23

<210> 59  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence

22

23

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<220>
<221> modified_base
<222> (10)..(12)
<223> n = g, a, c or t, may be present or absent
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<400> 61  
 kngknnknnn nnknnknnkn gk

22

<210> 62  
 <211> 23  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:target site DNA  
 motif searched by protocol 3

<220>  
 <221> modified\_base  
 <222> (1)..(23)  
 <223> n = g, a, c or t

<220>  
 <221> modified\_base  
 <222> (11)..(13)  
 <223> n = g, a, c or t, may be present or absent

<400> 62  
 kngknnknnn nnnknnknnk ngk

23

<210> 63  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:target site DNA  
 motif searched by protocol 3

<220>  
 <221> modified\_base  
 <222> (1)..(22)  
 <223> n = g, a, c or t

<220>  
 <221> modified\_base  
 <222> (10)..(12)  
 <223> n = g, a, c or t, may be present or absent

<400> 63  
 knnkngknnn nnkngknnkn nn

22

<210> 64  
 <211> 23  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:target site DNA  
 motif searched by protocol 3

<220>  
 <221> modified\_base  
 <222> (1)..(23)  
 <223> n = g, a, c or t

<220>  
 <221> modified\_base  
 <222> (11)..(13)  
 <223> n = g, a, c or t, may be present or absent

<400> 64  
 knnkngknnn nnnkngknnk nnn

23

<210> 65  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:target site DNA  
 motif searched by protocol 3

<220>  
 <221> modified\_base  
 <222> (1)..(22)  
 <223> n = g, a, c or t

<220>  
 <221> modified\_base  
 <222> (10)..(12)  
 <223> n = g, a, c or t, may be present or absent

<400> 65  
 knnkngknnn nnknnkngkn nn

22

<210> 66  
 <211> 23  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:target site DNA  
 motif searched by protocol 3

<220>  
 <221> modified\_base  
 <222> (1)..(23)  
 <223> n = g, a, c or t

<220>  
 <221> modified\_base  
 <222> (11)..(13)  
 <223> n = g, a, c or t, may be present or absent

<400> 66  
 knnkngknnn nnnknnkngk nnn

23



<210> 67  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:target site DNA  
 motif searched by protocol 3

<220>  
 <221> modified\_base  
 <222> (1)..(22)  
 <223> n = g, a, c or t

<220>  
 <221> modified\_base  
 <222> (10)..(12)  
 <223> n = g, a, c or t, may be present or absent

<400> 67  
 knnkngknnn nnknknknkn gk

22

<210> 68  
 <211> 23  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:target site DNA  
 motif searched by protocol 3

<220>  
 <221> modified\_base  
 <222> (1)..(23)  
 <223> n = g, a, c or t

<220>  
 <221> modified\_base  
 <222> (11)..(13)  
 <223> n = g, a, c or t, may be present or absent

<400> 68  
 knnkngknnn nnnknknknk ngk

23

<210> 69  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:target site DNA  
 motif searched by protocol 3

<220>  
 <221> modified\_base  
 <222> (1)..(22)  
 <223> n = g, a, c or t

<220>  
 <221> modified\_base  
 <222> (11)..(12)  
 <223> n = g, a, c or t, may be present or absent

<400> 69  
 knnknnkngk nnkngknnkn nn

22

<210> 70  
 <211> 23  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:target site DNA  
 motif searched by protocol 3

<220>  
 <221> modified\_base  
 <222> (1)..(23)  
 <223> n = g, a, c or t

<220>  
 <221> modified\_base  
 <222> (12)..(13)  
 <223> n = g, a, c or t, may be present or absent

<400> 70  
 knnknnkngk nnnkngknnk nnn

23

<210> 71  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:target site DNA  
 motif searched by protocol 3

<220>  
 <221> modified\_base  
 <222> (1)..(22)  
 <223> n = g, a, c or t

<220>  
 <221> modified\_base  
 <222> (11)..(12)  
 <223> n = g, a, c or t, may be present or absent

<400> 71  
 knnknnkngk nnknnkngkn nn

22

<210> 72  
 <211> 23  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:target site DNA  
 motif searched by protocol 3

<220>  
 <221> modified\_base  
 <222> (1)..(23)  
 <223> n = g, a, c or t

<220>  
 <221> modified\_base  
 <222> (12)..(13)  
 <223> n = g, a, c or t, may be present or absent

<400> 72  
 knnknnkngk nnnknnkngk nnn

23

<210> 73  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:target site DNA  
 motif searched by protocol 3

<220>  
 <221> modified\_base  
 <222> (1)..(22)  
 <223> n = g, a, c or t

<220>  
 <221> modified\_base  
 <222> (11)..(12)  
 <223> n = g, a, c or t, may be present or absent

<400> 73  
 knnknnkngk nnknnknnkn gk

22

<210> 74  
 <211> 23  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:target site DNA  
 motif searched by protocol 3

<220>  
 <221> modified\_base  
 <222> (1)..(23)  
 <223> n = g, a, c or t

<220>  
 <221> modified\_base  
 <222> (12)..(13)  
 <223> n = g, a, c or t, may be present or absent

<400> 74  
 knnknnkngk nnnknnknnk ngk

23

<210> 75  
 <211> 19  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:target site DNA  
 motif searched by protocol 3

<220>  
 <221> modified\_base  
 <222> (1)..(19)  
 <223> n = g, a, c or t

<400> 75  
 knnknnkngk ngknnknnn

19

<210> 76  
 <211> 19  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:target site DNA  
 motif searched by protocol 3

<220>  
 <221> modified\_base  
 <222> (1)..(19)  
 <223> n = g, a, c or t

<400> 76  
 knnknnkngk nnkngknnn

19

<210> 77  
 <211> 19  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:target site DNA  
 motif searched by protocol 3

<220>  
 <221> modified\_base  
 <222> (1)..(19)  
 <223> n = g, a, c or t

<400> 77  
 knnknnkngk nnknnkngk

19

<210> 78  
<211> 10  
<212> DNA  
<213> Glycine max

<220>  
<223> soybean FAD2-1 cDNA ZFP target segment FAD 1

<400> 78  
gaggtagagg

10

<210> 79  
<211> 10  
<212> DNA  
<213> Glycine max

<220>  
<223> soybean FAD2-1 cDNA target segment FAD 2

<400> 79  
gtcgtgtgga

10

<210> 80  
<211> 10  
<212> DNA  
<213> Glycine max

<220>  
<223> soybean FAD2-1 cDNA target segment FAD 3

<400> 80  
gttgaggaag

10

<210> 81  
<211> 10  
<212> DNA  
<213> Glycine max

<220>  
<223> soybean FAD2-1 cDNA target segment FAD 4

<400> 81  
gaggtggaag

10

<210> 82  
<211> 10  
<212> DNA  
<213> Glycine max

<220>  
<223> soybean FAD2-1 cDNA target segment FAD 5

<400> 82  
taggtggtga

10

<210> 83  
<211> 12  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:test sequence

<400> 83  
agtgcgcggt gc 12

<210> 84  
<211> 10  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:target site  
with base immediately to the 3' side of target  
site

<400> 84  
agtgcgcggt 10

<210> 85  
<211> 10  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:target site  
with base immediately to the 3' side of target  
site

<400> 85  
gtgcgcggtg 10

<210> 86  
<211> 10  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:target site  
with base immediately to the 3' side of target  
site

<400> 86  
tgcgcggtgc 10

<210> 87  
<211> 10  
<212> DNA  
<213> Artificial Sequence

10

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<210> 91
<211> 7
<212> PRT
<213> Artificial Sequence
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<220>

<223> Description of Artificial Sequence: finger for  
disordered output from optimal design target site

<400> 91

Arg Ser Asp Glu Leu Thr Arg  
1 5

<210> 92

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: finger for  
disordered output from optimal design target site

<400> 92

Arg Ser Asp Glu Arg Lys Arg  
1 5

<210> 93

<211> 21

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: three finger  
ZFP design using F3, F2 and F1 fingers for ordered  
output from optimal design target site

<400> 93

Arg Lys Asp Ser Leu Val Arg Arg Ser Asp Glu Leu Gln Arg Glu Arg  
1 5 10 15

Asp His Leu Arg Thr  
20

<210> 94

<211> 21

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: ZFP sequence  
(F1, F2 and F3) from SBS design GR-223

<400> 94

Arg Ser Ala Asp Leu Thr Arg Arg Ser Asp His Leu Thr Arg Glu Arg  
1 5 10 15

Asp His Leu Arg Thr  
20



<210> 95  
 <211> 21  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:ZFP sequence  
 (F1, F2 and F3) from Zif 268

<400> 95  
 Arg Ser Asp Glu Leu Thr Arg Arg Ser Asp His Leu Thr Thr Arg Ser  
 1 5 10 15

Asp Glu Arg Lys Arg  
 20

<210> 96  
 <211> 21  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:ZFP sequence  
 (F1, F2, F3) from SP1

<400> 96  
 Lys Thr Ser His Leu Arg Ala Arg Ser Asp Glu Leu Gln Arg Arg Ser  
 1 5 10 15

Asp His Leu Ser Lys  
 20

<210> 97  
 <211> 21  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:ZFP sequence  
 (F1, F2, F3) from SBS design GL-8.3.1

<400> 97  
 Arg Lys Asp Ser Leu Val Arg Thr Ser Asp His Leu Ala Ser Arg Ser  
 1 5 10 15

Asp Asn Leu Thr Arg  
 20